



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0793; Project Identifier MCAI-2021-00372-E; Amendment 39-21885; AD 2021-26-26]

RIN 2120-AA64

Airworthiness Directives; Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.) Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2005-12-08 for certain Safran Helicopter Engines, S.A. (Safran Helicopter Engines) Arrius 2B1, 2B1A, 2B1A-1, and 2B2 model turboshaft engines. AD 2005-12-08 required replacing the software in the engine electronic control unit (EECU). This AD was prompted by a report of simultaneous loss of automatic control on both engines installed on an Airbus Helicopters Deutschland (formerly Eurocopter Deutschland) EC135 helicopter during flight. This AD requires replacement of the EECU or upgrade of the EECU software for engines with a certain EECU part number (P/N) installed. This AD also prohibits installation of an affected EECU onto any engine. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of June 29, 2005 (70 FR 34334, June 14, 2005).

ADDRESSES: For service information identified in this final rule, contact Safran Helicopter Engines, S.A., Avenue du 1er Mai, 40220 Tarnos, France; phone: +33 (0) 5 59 74 45 00. You may view this service information at the Airworthiness Products Section, Operational Safety Branch, FAA, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110. It is also available at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0793.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0793; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is Document Operations, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7134; fax: (781) 238-7199; email: wego.wang@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2005-12-08, Amendment 39-14124 (70 FR 34334, June 14, 2005), (AD 2005-12-08). AD 2005-12-08 applied to all Safran Helicopter Engines (Type Certificate previously held by Turbomeca S.A.) Arrius 2 B1, 2 B1A, 2 B1A-1, and 2 B2 model turboshaft engines. These engines are installed on, but not limited to, Eurocopter Deutschland GmbH EC 135T1 and EC 135 T2 helicopters. The NPRM published in the *Federal Register* on September 20, 2021 (86 FR 52106). The NPRM was prompted by a report of simultaneous loss of automatic control on both engines installed on an Airbus Helicopters Deutschland (formerly Eurocopter Deutschland) EC135 helicopter during

flight. In addition, the manufacturer more recently determined that certain EECUs identified in AD 2005-12-08 are not subject to the unsafe condition. In the NPRM, the FAA proposed to require replacement of the EECU or upgrade of the EECU software for engines with a certain EECU P/N installed. In the NPRM, the FAA also proposed to prohibit installation of an affected EECU onto any engine. The FAA is issuing this AD to address the unsafe condition on these products.

The European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2021-0088, dated March 24, 2021. EASA AD 2021-0088 was revised by EASA AD 2021-0088R1, dated July 26, 2021 (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

An occurrence was reported of simultaneous loss of automatic control in flight of both ARRIUS 2B1 engines on an EC135 T1 helicopter. Loss of automatic control would result, for each engine, from a difference between the position datum of the fuel metering valve and its measured position.

This condition, if not corrected, could lead to increased work for flight crew during certain flight phases, possibly resulting in reduced control of the helicopter.

To address this potential unsafe condition, Turbomeca developed mod TU80C, TU81C, TU82C and TU90C to improve the DECU software for ARRIUS 2B1 engines without overspeed option, ARRIUS 2B1 engines with overspeed option, ARRIUS 2B1A and ARRIUS 2B2 engines, and DGAC France issued AD F-2004-017 (later revised) to require engine modification.

Since that [DGAC France] AD was issued, it was determined that a DECU having a P/N which corresponds to Turbomeca mod TU80C, TU81C, TU82C, TU90C or later software is not affected by the software modification requirement. DGAC France AD F-

2004-017R1 did not specifically identify any affected DECU P/N(s).

For the reason described above, this [EASA] AD retains the requirements of DGAC France AD F-2004-017R1 (EASA approval 2004-1618), which is superseded, and limits the required actions to engines with an affected DECU P/N installed. This [EASA] AD also prohibits (re)installation of affected DECU on any engine.

This [EASA] AD is revised to provide clarification on affected and serviceable DECU.

You may obtain further information by examining the MCAI in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0793.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment from one individual commenter. The commenter supported the NPRM without change.

Conclusion

The FAA reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. This AD is adopted as proposed in the NPRM.

Related Service Information under 1 CFR Part 51

The FAA reviewed Turbomeca Mandatory Service Bulletin (MSB) No. 319 73 2080, Revision 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Revision 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Revision 1, dated February 13, 2004, Version C, dated July 31, 2008, and Version D, dated June 6, 2011; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004. This service information specifies procedures for upgrading the EECU by either replacing the EECU or by uploading the software to the EECU. These documents are distinct since

they apply to different engine models in different configurations. The Director of the Federal Register previously approved Turbomeca MSB No. 319 73 2080, Revision 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Revision 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Revision 1, dated February 13, 2004; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004 for incorporation by reference on June 29, 2005 (70 FR 34334, June 14, 2005). This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 221 engines installed on helicopters of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Replace the EECU	1 work-hour x \$85 per hour = \$85	\$35,000	\$35,085	\$7,753,785
Upgrade the EECU software	2 work-hours x \$85 per hour = \$170	\$0	\$170	\$37,570

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA has determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

- a. Removing Airworthiness Directive 2005-12-08, Amendment 39-14124 (70 FR 34334, June 14, 2005); and

- b. Adding the following new airworthiness directive:

2021-26-26 Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.): Amendment 39-21885; Docket No. FAA-2021-0793; Project Identifier MCAI-2021-00372-E.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2005-12-08, Amendment 39-14124 (70 FR 34334, June 14, 2005).

(c) Applicability

This AD applies to Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.) Arrius 2B1, Arrius 2B1A, (including those that embody modification (mod) TU45C, identified as Arrius 2B1A_1) and Arrius 2B2 model turboshaft engines with an installed engine electronic control unit (EECU) having part number (P/N) 70EMF01080 or 70EMF01090—for Arrius 2B1 model turboshaft engines without overspeed protection option (TU 19C); P/N 70EMF01100 or P/N 70EMF01120—for Arrius 2B1 model turboshaft engines with overspeed protection option (TU 67C or TU 23C); P/N 70EMH01000 or 70EMH01010—for Arrius 2B1A model turboshaft engines; or P/N 70EMM01000—for Arrius 2B2 model turboshaft engines.

Note 1 to paragraph (c): Turbomeca Mandatory Service Bulletin (MSB) No. 319 73 2082, Version D, dated June 6, 2011, references Arrius 2B1A_1 model turboshaft engines. Arrius 2B1A model turboshaft engines with mod TU 45C applied are identified as Arrius 2B1A_1 on the engine identification plate.

(d) Subject

Joint Aircraft System Component (JASC) Code 7600, Engine Controls.

(e) Unsafe Condition

This AD was prompted by a report of simultaneous loss of automatic control on both engines installed on an Airbus Helicopters Deutschland (formerly Eurocopter Deutschland) EC135 helicopter during flight. The FAA is issuing this AD to prevent simultaneous loss of automatic control of both engines. The unsafe condition, if not addressed, could result in failure of the engines and loss of control of the helicopter.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) For engines with an EECU having P/N 70EMF01090, 70EMF01100, 70EMF01120, 70EMH01010, or 70EMM01000, within 90 days after June 29, 2005 (the effective date of AD 2005-12-08), or before further flight, whichever occurs later, upload the EECU software on both engines of the helicopter simultaneously using paragraph 2, Instructions to be incorporated, of the applicable Turbomeca MSB listed in Table 1 to paragraph (g) of this AD, or replace the affected EECU with a part eligible for installation.

(2) For engines with an EECU having P/N 70EMF01080 or 70EMH01000, within 90 days after June 29, 2005 (the effective date of AD 2005-12-08), or before further flight, whichever occurs later, replace the affected EECU with a part eligible for installation.

Table 1 to paragraph (g) – Applicable MSBs

For—	Use—
Arrius 2B1 engines with EECUs that have incorporated Modification TU 19C	Turbomeca MSB No. 319 73 2080, Revision 1, dated February 13, 2004
Arrius 2B1 engines with EECUs that have incorporated Modification TU 67C or TU 23C	Turbomeca MSB No. 319 73 2081, Revision 1, dated February 13, 2004
Arrius 2B1A and 2B1A1_1 engines	Turbomeca MSB No. 319 73 2082, Revision 1, dated February 13, 2004, Version C, dated July 31, 2008, or Version D, dated June 6, 2011
Arrius 2B2 engines	Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004

(h) Installation Prohibition

After the effective date of this AD, do not install onto any engine any EECU having a P/N identified in paragraph (c) of this AD.

(i) Definition

For the purpose of this AD, a “part eligible for installation” is an EECU having a P/N that is not identified in paragraph (c) of this AD.

(j) No Reporting Requirements

The reporting requirements specified in Turbomeca MSB No. 319 73 2080, Revision 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Revision 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Revision 1, dated February 13, 2004, Version C, dated July 31, 2008, and Version D, dated June 6, 2011; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004, are not required by this AD.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (l)(1) of this AD. Information may be emailed to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(l) Related Information

(1) For more information about this AD, contact Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7134; fax: (781) 238-7199; email: wego.wang@faa.gov.

(2) Refer to European Union Aviation Safety Agency (EASA) AD 2021-0088R1, dated July 26, 2021, for more information. You may examine the EASA AD in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0793.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(i) Turbomeca Mandatory Service Bulletin (MSB) No. 319 73 2082, Version C, dated July 31, 2008.

(ii) Turbomeca MSB No. 319 73 2082, Version D, dated June 6, 2011.

(4) The following service information was approved for IBR on June 29, 2005 (70 FR 34334, June 14, 2005).

(i) Turbomeca MSB No. 319 73 2080, Revision 1, dated February 13, 2004.

(ii) Turbomeca MSB No. 319 73 2081, Revision 1, dated February 13, 2004.

(iii) Turbomeca MSB No. 319 73 2082, Revision 1, dated February 13, 2004.

(iv) Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004.

(5) For Turbomeca service information identified in this AD, contact Safran Helicopter Engines, S.A., Avenue du 1er Mai, 40220 Tarnos, France; phone: +33 (0) 5 59 74 45 00.

(6) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(7) You may view this service information at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on December 17, 2021.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

[FR Doc. 2022-00891 Filed: 1/18/2022 8:45 am; Publication Date: 1/19/2022]